REMARKS

The Examiner has objected to the title as not being descriptive. In accordance with the Examiner comments, applicants have amended the title. Accordingly, this objection should be withdrawn.

The Examiner has objected to the figures as not including the legend "Prior Art" or "Related Art" when describing the prior or related art. Fig. 1 has been amended to include the legend "Prior Art." The Examiner has identified many other figures some of which involve features of prior art materials. However, the identification and measurement of these features is not necessarily included in the "Prior Art."

Claims 1, 3, and 32 stand rejected under 35 USC 102(b) as being anticipated by Nishimura. Claims 4 and 5 stand rejected under 35 USC 103(a) as being unpatentable over Nishimura in view of Takatori. Claims 6 and 7 stand rejected under 35 USC 103(a) as being unpatentable over Nishimura in view of Kitayama. These rejections are respectfully traversed.

As recited in independent claim 1, applicants claim a liquid crystal device including a liquid crystal material wherein "the liquid crystal material shows almost no spontaneous polarization which is perpendicular to the pair of substrates under the absence of an externally applied voltage shown by substantially no peak shape current when a triangular voltage of 0.1 Hz, 5V at 24°C is applied." Nishimura fails to disclose or suggest a liquid crystal material with the claims features.

> Following are paragraphs 42-46 of Nishimura:
> [0042] When no electric field is applied, the direction D of the directors of the respective liquid crystal molecules 3 are matched with the uniaxial orientation process direction of the rubbing processed layers 1c and 2c of the substrates 1 and 2. That is, as shown in the center of FIG.3 to FIG.5, the direction D of the directors of the liquid crystal molecules 3 are at the center of the projection plane of the cone.
> [0043] **This state is the monostable state.** For example, when the polarization direction P of the polarizer is mated with the orientation process directions X and Y and the polarization direction A of the analyzer is orthogonal to this, no light penetration, making a dark state.

> [0044] On the other hand, for example, **when pulse (+) is applied to the transparent electrode 1b of the upper substrate 1 and minus (-) is applied to the transparent electrode 2 of the lower substrate 2, as shown at left of the respective figures, the liquid crystal molecule 3 is rotated in the counterclockwise direction (the rotation direction depends on the polarity of the polarity of the transparent polarization of the liquid crystal material).** Here, the apparent tilt angle 0 is increased as the distance from the boundary with the rubbing processed layer 1c and 2c is increased. The reason is considered to be that the interaction is intense at the boundary with the rubbing processed layers 1c and 2c, causing a so-called anchor effect.
> [0045] Here, the maximum value . Θ_{MAX} of the apparent tilt angle Θ is determined by the electric field intensity. Accordingly, the tilt angle maximum value . Θ_{MAX} is continuously changed according to the electric field intensity. Of course, this is accompanied by a continuous change of an average value . Θ_{AVG} of the apparent tilt angle viewed as the entire liquid crystal cell.
> [0046] Similarly, **when a minus (-) electric field is applied to the transparent electrode 1b of the upper substrate 1 and a plus (+) electric field is applied to the transparent electrode 2b of the lower substrate 2, as shown at the right in the figures, the liquid crystal molecule 3 is rotated clockwise and the maximum value** . Θ_{MAX} and the average value . Θ_{AVG} of the apparent tilt angle are continuously changed.

(emphasis added).

As stated above, Nishimura describes a ferroelectric liquid crystal display in which its driving torque is based on coupling between the spontaneous polarization of the liquid crystal materials and an externally applied electric field. Specifically, as stated in paragraphs [0044] and [0046], when a pulse (+) voltage is applied to the initial oriented liquid crystal material, it turns to a specific direction along a cone angle. The polarity dependent molecular rotation is the unique characteristic property of liquid crystal materials whose driving torque is based on spontaneous polarization. Moreover, as long as the molecular driving torque is based on spontaneous polarization, it will always create a polarization switching peak current. Accordingly, a peak shaped current when a triangular voltage of 0.1 Hz, 5V at 24°C is applied would be observed in Nishimura.

Consequently, the ferroelectric liquid display material in Nishimura would not show "almost no spontaneous polarization which is perpendicular to the pair of substrates under the

absence of an externally applied voltage shown by substantially no peak shape current when a triangular voltage of 0.1 Hz, 5V at 24°C is applied" as required by claim 1.

Takatori is only cited by the Examiner to as allegedly disclosing a liquid crystal display device wherein the liquid crystal molecular alignment material provides a surface pre-tilt angle of 1.5 degrees or less. Kitayama is only cited by the Examiner as allegedly disclosing a liquid crystal material having a book-shelf or quasi-bookshelf layer structure and where the helical pitch at the ferroelectric liquid crystal phase is 1.2 times or larger than the panel gap. Like Nishimura, Takatori and Kitayama fail to disclose or suggest a liquid crystal material wherein "the liquid crystal material shows almost no spontaneous polarization which is perpendicular to the pair of substrates under the absence of an externally applied voltage shown by substantially no peak shape current when a triangular voltage of 0.1 Hz, 5V at 24°C is applied." Accordingly, the rejections of claims 1, 3-7 and 32 should be withdrawn.

In view of the above, each of the claims in this application is in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and

authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **350292001900**.

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Respectfully submitted,

By_____

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